

What is claimed is:

1. A step motor control device comprising:

first and second switch elements which are connected to each other in series;

third and fourth switch elements which are connected to each other in series;

a coil of a step motor which is connected between a node of the first and second switch elements and a node of the third and fourth switch elements;

a first series circuit including a fifth switch element connected in parallel with the first switch element and a first detection element;

a second series circuit including a sixth switch element connected in parallel with the third switch element and a second detection element;

a control means that controls an on/off operation of the first to fourth switch elements in response to a drive pulse to allow a current to flow in the coil to rotationally drive the step motor, and controls an on/off operation of the fourth, third, fifth, and sixth switch elements in response to a rotation detection control pulse that is supplied immediately after the supply of the drive pulse is finished in a rotation detection period immediately after the rotation drive of the step motor in accordance with the drive pulse; and a detecting means that detects the presence/absence of

the rotation of the step motor on the basis of a comparison result of a voltage generated between the first and second detection elements and the coil with a given threshold voltage;

wherein in the case where the step motor is rotationally driven by turning on the first and fourth switch elements in accordance with the drive pulse, the control means renders the fourth and fifth switch elements on and controls the on/off operation of the third switch element at a given frequency in a first given period immediately after the supply of the drive pulse is finished, and renders the third switch element and the sixth switch element on and controls the on/off operation of the fourth switch element at a given frequency in a second given period after lapse of the first given period;

in the case where the step motor is rotationally driven by turning the second and third switch elements on in accordance with the drive pulse, the control means renders the third and sixth switch elements on and controls the on/off operation of the fourth switch element at a given frequency in the first given period immediately after the supply of the drive pulse is finished, and renders the fourth switch element and the fifth switch element on in the second given period and controls the on/off operation of the third switch element at a given frequency; and

the detection means detects the presence/absence of the rotation of the step motor on the basis of the comparison result of the voltage generated between the first detection element and

the coil with the threshold voltage when the fifth switch element is turned on, and detects the presence/absence of the rotation of the step motor on the basis of the comparison result of the voltage generated between the second detection element and the coil with the threshold voltage when the sixth switch element is turned on.

2. A step motor control device according to claim 1, comprising:

wherein the first, third, fifth, and sixth switch elements are made up of n-channel MOS transistors, and the second and fourth switch elements are made up of p-channel MOS transistors.

3. A step motor control device according to claim 1, comprising:

wherein the first and second detection elements are made up of resistors.

4. An electronic timepiece comprising:

a step motor that rotates time hands; and

a step motor control device that rotationally controls the step motor;

wherein the step motor control device according to claim 1 is used as the step motor control device.